United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
May 1, 2011

Johnson Creek, tributary of the South Fork Salmon River, on April 12, 2011

Cool temperatures combined with above average April precipitation delayed snowmelt and allowed Idaho's snowpack to continue building. Snowpacks range from 125 - 190% of average across Idaho with snowpacks at or near record high levels in eastern Idaho, the Upper Snake basin in Wyoming, Bear River and isolated pockets in the Panhandle Region. Creeks are flowing and warm temperatures will soon be here to increase snowmelt rates. Until then, reservoir operators are releasing water to make room for the 125 - 250% of average streamflow predicted across Idaho for the May - July period.

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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IDAHO WATER SUPPLY OUTLOOK REPORT

May 1, 2011

SUMMARY

April provided a bonus month of winter. The extra snow boosted peak snow water amounts and has provided more than enough water for all involved this summer. The situation has also created a threatening runoff season.

The cool temperatures delayed the snowmelt and combined with April's precipitation, which was twice normal in the Panhandle, Spokane, Clearwater, Upper Snake, Owyhee and Bear basins, to add significant amounts of snow water to the snowpack. The result is that many basins in eastern Idaho, the Upper Snake in Wyoming and the Bear River are now at or near record high May 1 levels. These sites are not at the all time high because in April 1997 the snowpack was even higher. In most years, including 1997, the mid-elevation snowpack started melting in April. This melt did not happen this year because of below normal temperatures and therefore, many sites are just now reaching their peak snow water content for the season. Snow indexes across Idaho's southern basins, including the Malad, Salmon Falls, Bruneau and Owyhee, are the highest since 1984. Other basins such as Oakley, Big Lost, NF Clearwater, St Joe, and Coeur d'Alene have the highest snowpacks since 1997, while the Panhandle Region and Payette snowpack is the highest since 1999. The snowpack in Idaho's central mountains, the Boise, Big Wood and Little Wood, is the highest since 2006.

Late peaking snowpack is an anomaly and it's important to understand how it impacts Idaho's water supply and runoff picture. In an average year up to about 25% of the snowpack melts during April, in fact that's the reason streamflow forecasts throughout the winter reference the April-July and April-September runoff period. This year April's streamflow was only half of average in the headwater streams because cool temperatures prevented snowmelt. Looking forward not only do we have more snow, but it will runoff in a shorter time period. The streamflow forecasts in this report reflect that as the runoff period changes from starting in April to starting in May. Streamflow forecasts increased from last month and range from a low of 120-130% of average in the Salmon, Payette, Boise, Camas, Little Wood, Big Lost and Kootenai drainages to near 200% of average in the Teton, Salt, Owyhee, Salmon Falls and NF Coeur d'Alene drainages, and a high of 258% for the Bear River below Stewart Dam. More water in less time means volumes will be much greater than normal.

At this point, Idaho needs the right combination of future weather to relieve the pressure when snowpacks start to melt. The best case scenario would be slightly warmer temperatures and dry weather in early May to start melting the mid-elevation snowpack before the higher elevation snowpack starts melting in the latter half of May when temperature become even warmer. Abundant May and June rains like last year are not needed, nor are record high daytime temperatures in late May or record high nighttime temperatures in early June. Moderate daytime temperatures with freezing nighttime temperatures would provide an even melt and reduce the chances of flooding. Ideally, multiple streamflow peaks are better than a single high peak, which creates a challenge for reservoir operators to manage. Peak flows will be high but the actual timing of peak flows depends on spring temperatures and precipitation as the amount of snow cover area recedes over time. Overall, water supplies will be far more than

adequate for Idaho's water users. One thing that is sure is that river levels and volumes will be high for an extended period and remain above average through the summer.

SNOWPACK

Just when you thought the April 1 snow water content amounts represented the end of winter accumulation, now a month later snow measuring stations still have not reached their peak snow water content amounts this season. Individual stations from Skitwish Ridge snow course in the Panhandle, to Wildhorse Divide above Pocatello, Mud Creek near Idaho Falls, Lewis Lake Divide in Yellowstone National Park and Trial Lake in the Bear River headwaters in Utah are at or near record highs for May 1. Often the May 1 period of record is shorter, but many records still include the recent big years of 1997 and the early 1980s. State-wide, snowpack percentages range from 125% of average in the Boise and Big Wood basins to over 190% in Rathdrum, Mann, Ririe, Blackfoot, Portneuf, Bruneau, Owyhee, and most of the Bear basins. Snowpack percentages are somewhat inflated because of the delayed snowmelt. They reflect the large amount of water being stored in the mountains that is waiting to melt and fill our streams, reservoirs, produce hydropower, help with salmon recovery and recharge aquifers and springs around the state.

PRECIPITATION

April precipitation was nearly identical to March's precipitation with the whole state receiving above average amounts. The least amounts were about 110% of average in the Weiser, Little Wood and Big Lost basins. The Northern Panhandle Region received the greatest amounts at 250% of average. Bear Mountain SNOTEL, just north of Pend Oreille Lake along the Montana border, received 308% of average precipitation in April totaling 18.5 inches while the average is 6 inches. Other basins to receive near 200% of average moisture in April include the Spokane, Clearwater, Upper Snake, Owyhee and Bear basins. Mountain precipitation received since the start of the water year, October 1, 2010, ranges from a low of 105-110% of average in the Big Wood, Boise and Salmon basins to 130-140% of average in the Spokane basin and across southern Idaho from the Owyhee to the Bear basins. Many of the basins mentioned above have already received their annual precipitation amounts with five months still to go until the water year ends September 30, 2011!

RESERVOIRS

Many reservoirs are being drafted across the state to make room for the abundant runoff. Dam operators are carefully balancing reservoir operations. Ideal operations would leave enough reservoir storage space to capture peak stream inflows and prevent damaging flows downstream from occurring. Drafting will continue at Palisades Reservoir, which is 27% full, and Dworshak Reservoir, which is 43% full. These percentages include inactive storage that is not normaly released. Releases are continuing on the Payette and Boise reservoir systems, Owyhee, Magic, Little Wood, Mackay, and Montpelier reservoirs. The larger reservoirs in southern Idaho, Oakley, Salmon Falls and Bear Lake should have enough space available to capture this year's runoff and allow them to provide much better carryover storage for next year. Based on the

current cool and wet trend, which is also similar to last spring, water users and managers may wish to consider using the 30% or 10% Chance of Exceedance Streamflow Forecasts.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases, dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

STREAMFLOW

In general, March's trend continued in April with monthly streamflow volumes being above average in lower elevation drainages and below average in the higher elevation drainages. This is direct result of the cold temperatures locking the moisture in the snowpack until warmer temperatures arrive. Good examples are the Big Wood, Little Lost, Big Lost and Deadwood River where the April volumes were only half of average, while many of the lower elevation rivers were flowing at 100-200% of average in April. Even the Owyhee River near Rome has been flowing above average since late February and will have another increase in flow from the remaining snow. Often, it seems the trends observed in the lower elevation streams may provide a glimpse of how the higher elevation streams will behave. This would point to the watersheds being hydrologically primed, based on good soil moisture from the fall rains, a January winter rain event and above average precipitation this water year. If this is the case, water users may see streams remain high for an extended period of time as they did in 2008 after the snowmelt peaks occurred.

Note: Forecasts published in this report are NRCS forecasts. Jointly coordinated published forecasts by the USDA NRCS and the NOAA NWS are available from the joint west-wide Water Supply Outlook for the Western US at http://www.wcc.nrcs.usda.gov/wsf/westwide.html. The volumes referenced in these narratives are the 50% Chance of Exceeding Forecast, unless otherwise noted. Users may wish to use a different forecast to reduce their risk of having too much or too little water.

RECREATION

River runners and hard-core whitewater experts should get ready for a tsunami of a snowmelt runoff season. Idaho's desert rivers have already been high at times and above recommend levels for floating. The Owyhee River near Rome has been running between 400 and 18,000 cfs since early March while the Bruneau River has been above 800 cfs since early April and peaked once over 4,000 cfs. They both will have another increase in flow and an extended floating season from the remaining snow. Idaho's other famous rivers for floating will all increase to and remain above average levels through the summer when the snow finally starts melting. Peak streamflows could be very high and depend on spring temperatures, consecutive hot days, non-freezing night temperatures, and if rain falls when the snow is melting. In a year like 1998 which had a good snowpack, moderate temperatures were ideal to gradually melt the snow and produce multiple streamflow peaks May through early July. Know your limits when it comes to floating the rivers and understand the highly variable conditions and challenges in predicting peak flows whether you are a river runner or a water manager. Streamflows can change suddenly in the spring. High flows transport debris down the river creating new or different rapids. If you can wait until after the peak flows have occurred, you will be assured a long and extended river running season that will provide family friendly floating levels.

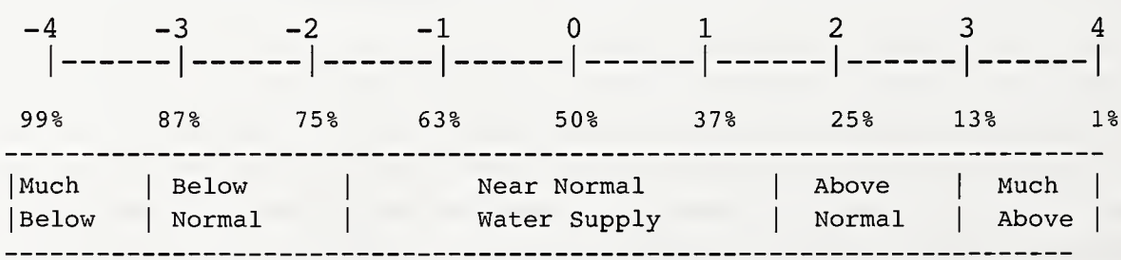
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) May 1, 2011

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1971 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

BASIN or REGION	***SWSI Value***	***Most Recent Year With Similar SWSI Value***	***Agricultural Water Supply Shortage May Occur When SWSI is Less Than***
Northern Panhandle	3.0	1999	NA
Spokane	3.0	1972	NA
Clearwater	2.4	1996	NA
Salmon	2.0	1999	NA
Weiser	2.4	1999	NA
Payette	2.4	1999	NA
Boise	1.4	2006	-2.4
Big Wood	1.7	1999	-0.7
Little Wood	0.9	2005	-2.1
Big Lost	2.2	1998	-0.3
Little Lost	3.3	1997	0.5
Teton	4.0	1997	NA
Henrys Fork	3.8	1998	-3.4
Snake (Heise)	3.9	1971	-1.7
Oakley	1.0	1985	-1.0
Salmon Falls	3.5	1986	-1.2
Bruneau	3.5	1971	NA
Owyhee	3.3	1998	-3.5
Bear River	1.0	1985	-3.6

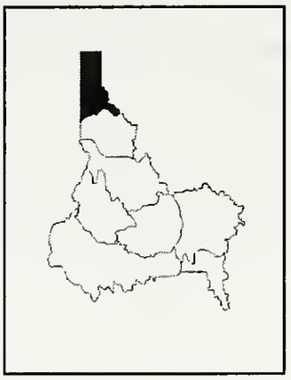
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

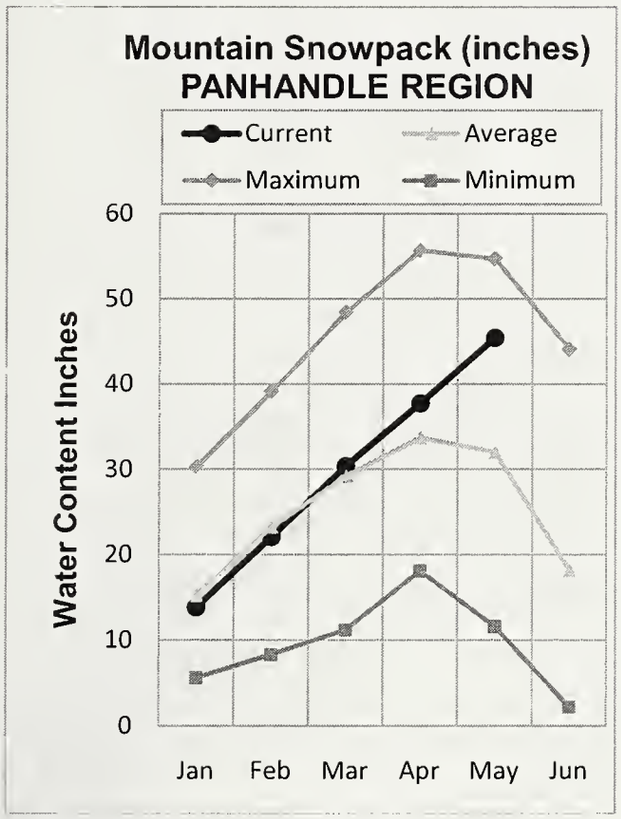


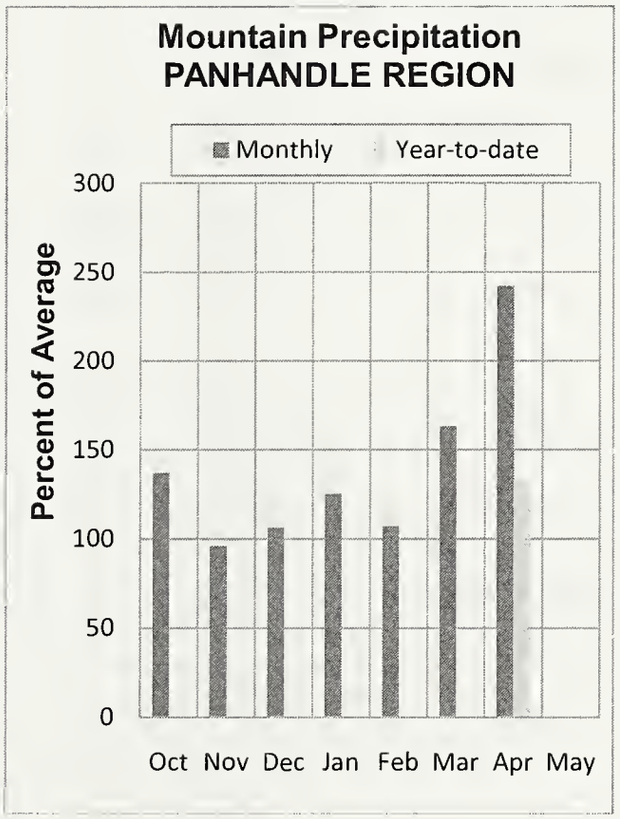
NA = Not Applicable, Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION

MAY 1, 2011







WATER SUPPLY OUTLOOK

Winter has lingered during the month of April and so has the mountain snowpack. To put it in perspective, the mountains received 242% of average monthly precipitation, which was the highest in the state. Four SNOTEL sites broke the May 1 snow water content record in the Panhandle region. Three of these sites are less than 5000 feet in elevation and are usually melting by now but the mid-elevation snowpack was still build in April. As an example, Humboldt Gulch SNOTEL, 4,250 feet, has 17.7 inches of snow water content on May 1 and the average is 5.5 inches. Benton Spring snow course, 4,920 feet, has 29.1 inches of water while the average is 12.0 inches. This means that there is more spring runoff left to come. The peak streamflows are dependent on the weather conditions over the next few weeks which will melt the snow in the mid-elevations followed by the higher elevations. The drivers of the peaks will be rain on melting snow or consecutive hot days. However, once runoff begins and the stream peaks subside, the rivers will see sustained above average flows through the summer. The highest May-July forecast is for 190% of average for the NF Coeur d'Alene River and the lowest is for 122% of average for the Kootenai River. Similar to the last few springs, the wet and cool conditions delay working the fields for planting.

PANHANDLE REGION
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Kootenai R at Leonia (1,2)	MAY-JUL	6190	7110	7530	122	7950	8870	6170
	MAY-SEP	7570	8440	8830	122	9220	10100	7250
Moyie River at Eastport	MAY-JUL	376	417	445	135	473	514	330
	MAY-SEP	392	435	465	135	495	538	345
Smith Ck nr Porthill	MAY-JUL	114	133	145	139	157	176	104
	MAY-SEP	118	140	154	139	168	190	111
Boundary Ck nr Porthill	MAY-JUL	118	131	140	137	149	162	102
	MAY-SEP	125	139	148	137	157	171	108
Clark Fork at Whitehorse Rpds (1,2)	MAY-JUL	12500	13700	14300	149	14900	16100	9590
	MAY-SEP	13800	15200	15900	149	16600	18000	10700
Pend Oreille Lake Inflow (2)	MAY-JUL	14300	15300	15900	150	16500	17500	10600
	MAY-SEP	15900	17000	17700	150	18400	19500	11800
Priest R nr Priest River (1,2)	MAY-JUL	675	775	820	133	865	965	615
	MAY-SEP	725	840	890	133	940	1050	670
NF Coeur d'Alene R at Enaville	MAY-JUL	645	758	835	190	912	1025	440
	MAY-SEP	715	831	910	190	989	1105	480
St. Joe R at Calder	MAY-JUL	1142	1242	1310	155	1378	1478	845
	MAY-SEP	1235	1339	1410	155	1481	1585	910
Spokane R nr Post Falls (2)	MAY-JUL	2454	2726	2910	174	3094	3366	1670
	MAY-SEP	2583	2879	3080	174	3281	3577	1770
Spokane R at Long Lake (2)	MAY-JUL	2662	2988	3210	168	3432	3758	1910
	MAY-SEP	2998	3344	3580	168	3816	4162	2130

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	1786.0	2746.0	1954.8
FLATHEAD LAKE	1791.0	988.2	1039.0	931.9
NOXON RAPIDS	335.0	309.3	299.3	272.3
PEND OREILLE	1561.3	693.8	844.8	916.7
COEUR D'ALENE	238.5	201.8	182.3	249.7
PRIEST LAKE	119.3	71.5	94.9	102.5

PANHANDLE REGION
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	20	239	161
Moyie River	5	214	141
Priest River	4	192	149
Pend Oreille River	86	240	165
Rathdrum Creek	1	427	230
Hayden Lake	0	0	0
Coeur d'Alene River	7	327	176
St. Joe River	4	245	135
Spokane River	12	295	160
Palouse River	1	0	148

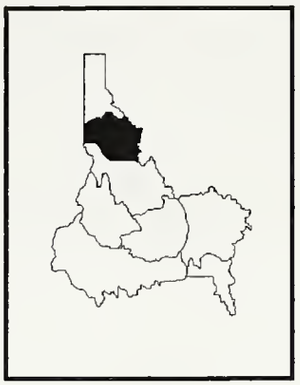
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

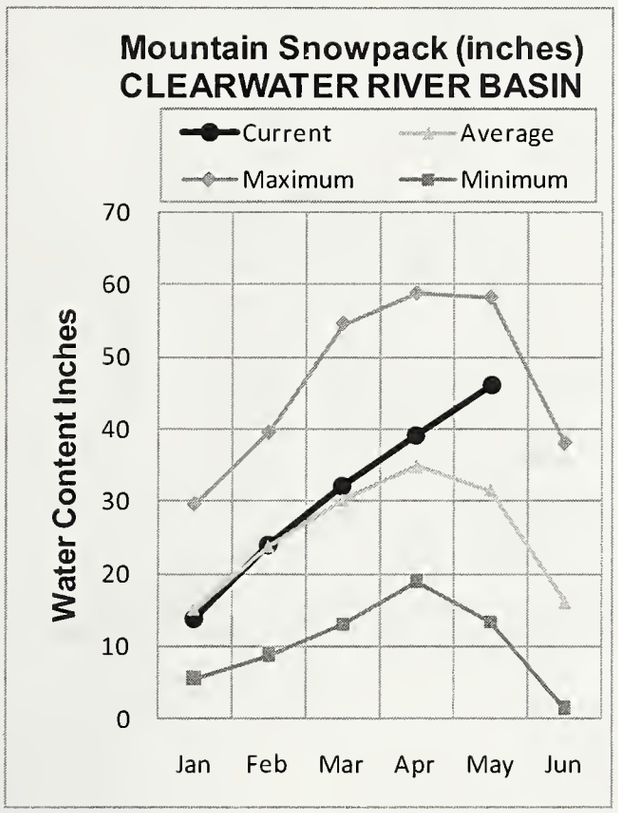
The average is computed for the 1971-2000 base period.

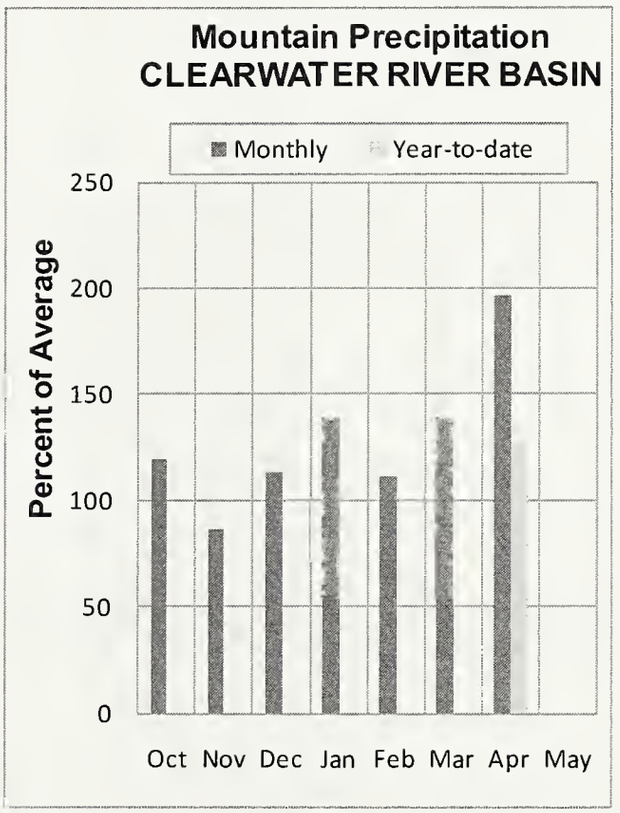
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

CLEARWATER RIVER BASIN

MAY 1, 2011







WATER SUPPLY OUTLOOK

The fact that the snowpack in the Clearwater basin has not broken a record is hard to believe considering that 197% of average precipitation the fell in April. On May 1 in 1997, the Clearwater had a snowpack of 172% of average and the snowpack is 146% of average this year. 1997 was the last time there was this much snow in the basin. Even during the last week of April, SNOTEL sites in the Clearwater were receiving new powder. Usually around April 1, the NRCS flies a helicopter snow survey mission to verify the data for the Army Corp of Engineers, who operate Dworshak Reservoir. This year, the flight was not completed until May 1 when the weather finally provided a clear weather window. On this date, the NRCS measured the deepest snow in Idaho this year: 17 feet of snow at Lost Lake SNOTEL site! If you've been up to Dworshak Reservoir, you may notice that it is low, 43% full, 59% of average, because they are drafting the reservoir to make room for the snowmelt runoff. The NRCS Dworshak calculations include the inactive 1,452,000 acre-feet that is not drafted. The good snowpack results in forecasts of 136% of average streamflows for Dworshak Reservoir Inflow and the Clearwater River and up to about 141% of average for the Lochsa and Selway rivers for the May-September period. These seasonal forecasts can be interpreted that streamflow will be excellent through the summer and provide a long floating season. Snowmelt streamflow relationship information is available on the Idaho NRCS web page; the rivers have a good potential to run big even without consecutive hot days or additional rain on the melting snow during the next month and a half.

CLEARWATER RIVER BASIN
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	MAY-JUL	2146	2291	2390	139	2489	2634	1720
	MAY-SEP	2235	2399	2510	137	2621	2785	1830
Lochsa R nr Lowell	MAY-JUL	1615	1707	1770	142	1833	1925	1250
	MAY-SEP	1701	1802	1870	141	1938	2039	1330
Dworshak Res Inflow (1,2)	MAY-JUL	2199	2516	2660	135	2804	3121	1970
	MAY-SEP	2396	2742	2900	136	3058	3404	2130
Clearwater R at Orofino (1)	MAY-JUL	4400	4916	5150	138	5384	5900	3730
	MAY-SEP	4627	5179	5430	136	5681	6233	3990
Clearwater R at Spalding (1,2)	MAY-JUL	6739	7537	7900	137	8263	9061	5770
	MAY-SEP	7184	8041	8430	136	8819	9676	6190

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	1502.8	2621.0	2560.7

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	245	146
Lochsa River	2	297	150
Selway River	4	297	150
Clearwater Basin Total	15	257	147

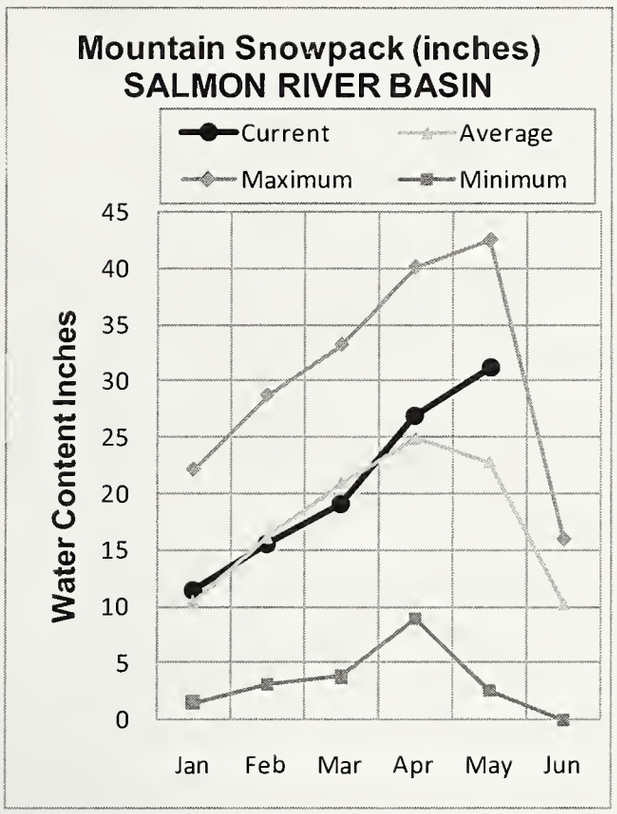
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

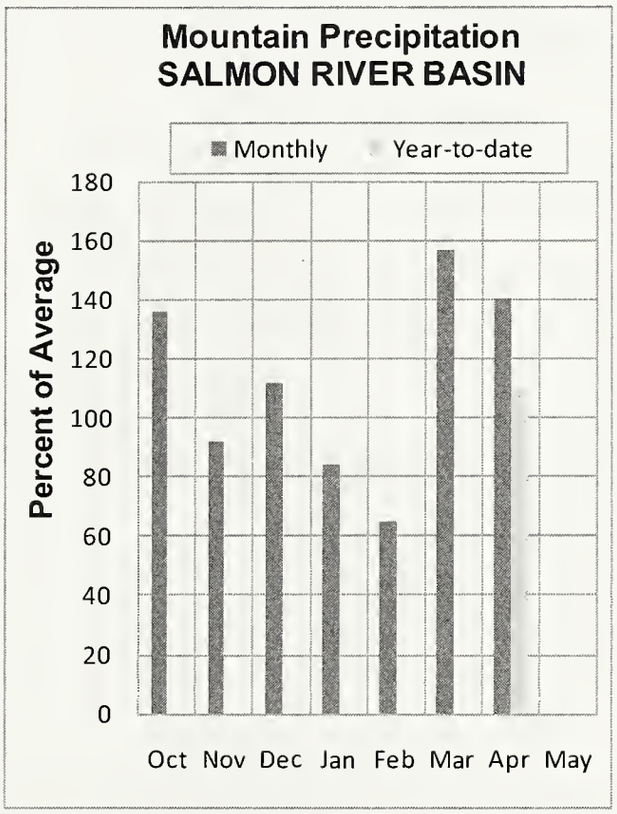
The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

SALMON RIVER BASIN

MAY 1, 2011





WATER SUPPLY OUTLOOK

Similar to the Clearwater basin to the north, the May first snowpack of 137% of average in the Salmon basin is not record high, but is the highest since 1997. It's a stark contrast to last May when the snow was 62% of average. Winter recreation continued this April as if it was mid-winter and winter sports enthusiasts will be able to continue playing through May and even into June in the higher elevations! The snowpack is reaching its second phase in life called ripening. Ripening occurs when the layers in the snowpack break down and the snowpack temperature reaches 32 degrees F throughout, also referred to as isothermal. During this phase, it does not take much added energy to move the snowpack to move into the snowmelt phase. Any rain on the melting snow or consecutive hot days increases this process and could create potentially high peak streamflows. Recall last June during a low snow year when several inches of rain fell on the melting snowpack causing the MF Salmon River to reach almost 9 feet on the gage! It is a challenge to predict events like this without much lead-time. However, additional snowmelt peak streamflow information is available on the Idaho NRCS web page. Given the current information, the May-September forecasts call for 121% of average streamflows for the Salmon River near White Bird and Johnson Creek and up to 130% for the MF Salmon and Lemhi rivers.

SALMON RIVER BASIN
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon (1)	MAY-JUL	773	909	970	128	1031	1167	760
	MAY-SEP	910	1075	1150	128	1225	1390	900
Lemhi R nr Lemhi	MAY-JUL	66	81	91	130	102	119	70
	MAY-SEP	89	105	117	132	130	149	89
MF Salmon R at MF Lodge	MAY-JUL	775	867	930	133	993	1085	700
	MAY-SEP	857	966	1040	133	1114	1223	785
SF Salmon R nr Krassel RS	MAY-JUL	253	281	300	120	319	347	250
	MAY-SEP	282	308	325	120	342	368	271
Johnson Ck at Yellow Pine	MAY-JUL	196	213	225	121	237	254	186
	MAY-SEP	213	229	240	121	251	267	199
Salmon R at White Bird (1)	MAY-JUL	4945	5760	6130	119	6500	7315	5150
	MAY-SEP	5634	6567	6990	121	7413	8346	5780

SALMON RIVER BASIN
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	7	205	127
Lemhi River	7	195	137
Middle Fork Salmon River	3	244	127
South Fork Salmon River	3	222	127
Little Salmon River	4	234	167
Salmon Basin Total	25	219	136

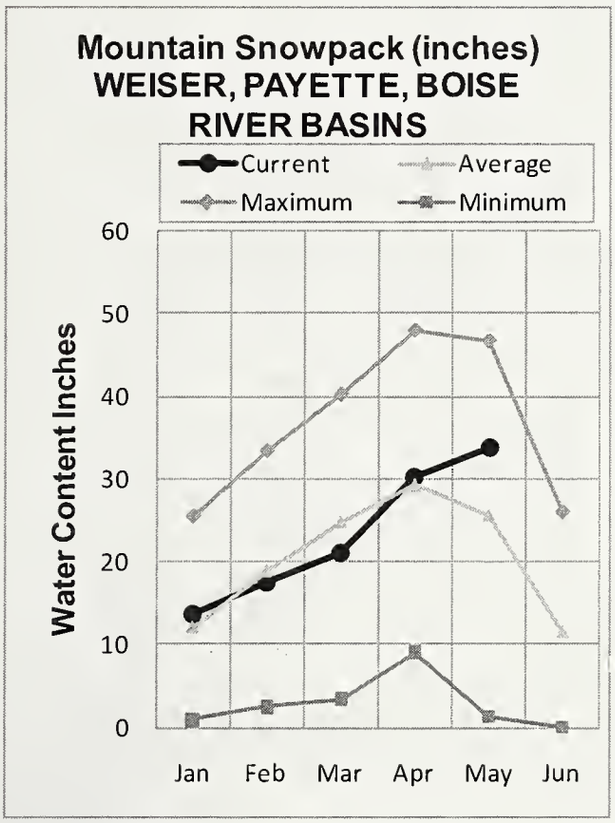
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

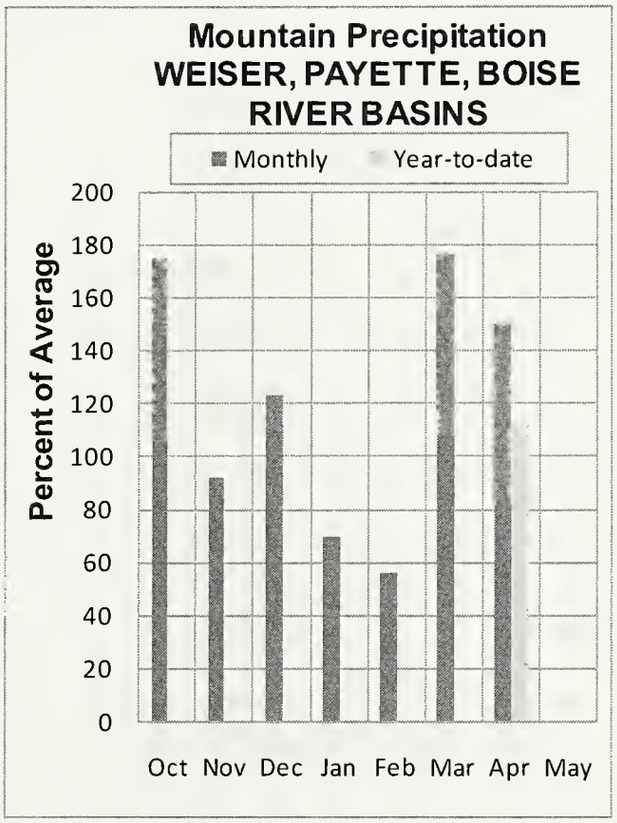
The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

WEISER, PAYETTE, BOISE RIVER BASINS

MAY 1, 2011





WATER SUPPLY OUTLOOK

April's cool and stormy weather extended winter for another month in Idaho's west central mountains. April precipitation for the region was 150% of average for the month. Precipitation combined with cool temperatures allowed most SNOTEL sites to continue accumulating snow through April. As of May 1, the snowpack in the Boise basin is slightly above its normal seasonal peak value, while the snowpacks in the Payette and Weiser basins are 115% and 118% of seasonal peak amounts. The May 1 snow amounts at 195% of average are the best since 1999 in the Weiser and third highest on record since 1982. The Payette's snowpack at 145% of average is the best since 1997 while the Boise's snow is the best since 2006. Streamflow forecasts call for summer volumes of 120-130% of average for most forecast points in the region with the highest forecast for the Weiser River at 149% for the May-July period. The increase in these streamflow forecasts are the reasons additional releases are being made and allow water managers to take advantage of the continued cool weather by making additional storage space before snowmelt fully kicks in. Lucky Peak's "rooster tail" will be shooting water into the sky the weekend of May 7-8. Water supplies will be more than plentiful this summer. Reservoir managers will continue monitoring conditions this spring to balance the need for additional releases while ensuring reservoirs are topped off after the snowmelt peaks have occurred.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	MAY-JUL	236	331	380	149	432	558	255
	MAY-SEP	264	364	415	146	469	600	285
SF Payette R at Lowman	MAY-JUL	403	439	465	122	491	531	380
	MAY-SEP	459	501	530	122	560	606	435
Deadwood Res Inflow (1,2)	MAY-JUL	123	140	147	127	154	171	116
	MAY-SEP	130	149	158	126	167	186	125
Lake Fk Payette R nr McCall	MAY-JUL	84	92	97	128	103	111	76
	MAY-SEP	86	94	100	127	106	115	79
NF Payette R at Cascade (1,2)	MAY-JUL	422	493	525	127	557	628	415
	MAY-SEP	428	509	545	125	581	662	435
NF Payette R nr Banks (2)	MAY-JUL	562	623	665	127	707	768	525
	MAY-SEP	577	644	690	126	736	803	550
Payette R nr Horseshoe Bend (1,2)	MAY-JUL	1417	1584	1660	127	1736	1903	1310
	MAY-SEP	1535	1717	1800	126	1883	2065	1430
Boise R nr Twin Springs (1)	MAY-JUL	501	586	625	123	664	749	510
	MAY-SEP	554	647	690	122	733	826	565
SF Boise R at Anderson Ranch (1,2)	MAY-JUL	422	503	540	126	577	658	430
	MAY-SEP	448	535	575	124	615	702	465
Mores Ck nr Arrowrock Dam	MAY-JUL	71	89	103	130	118	141	79
	MAY-SEP	76	96	110	129	126	150	85
Boise R nr Boise (1,2)	MAY-JUL	1155	1296	1360	126	1424	1565	1080
	MAY-SEP	1261	1412	1480	124	1548	1699	1190

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	10.5	10.9	10.5
CASCADE	693.2	453.3	526.6	462.5
DEADWOOD	161.9	109.5	107.7	103.4
ANDERSON RANCH	450.2	341.3	354.8	302.3
ARROWROCK	272.2	132.1	249.2	180.9
LUCKY PEAK	293.2	225.3	192.2	207.9
LAKE LOWELL (DEER FLAT)	165.2	140.0	144.6	141.5

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	145	214
Weiser River	3	204	195
North Fork Payette	8	232	151
South Fork Payette	5	211	134
Payette Basin Total	14	218	144
Middle & North Fork Boise	5	191	125
South Fork Boise River	7	177	118
Mores Creek	4	185	152
Boise Basin Total	13	186	129
Canyon Creek	1	178	213

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
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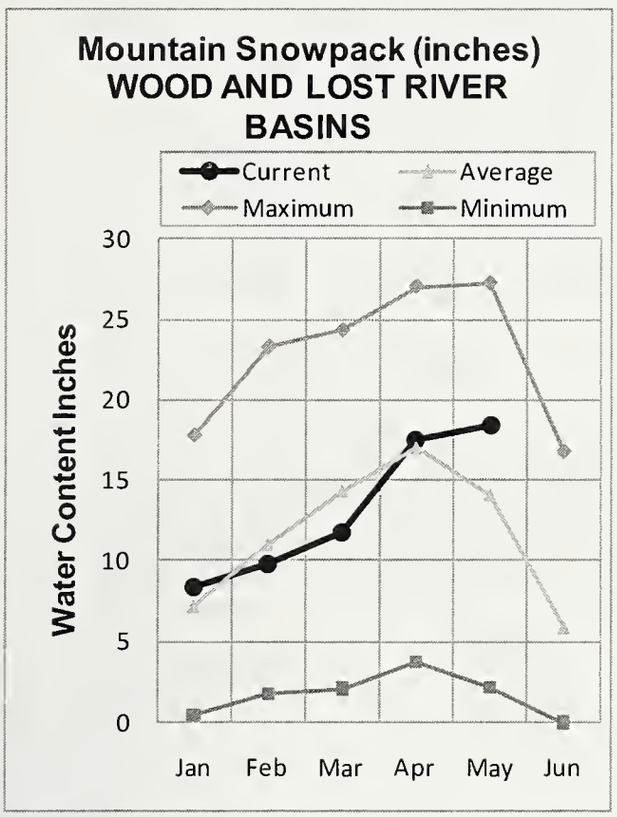
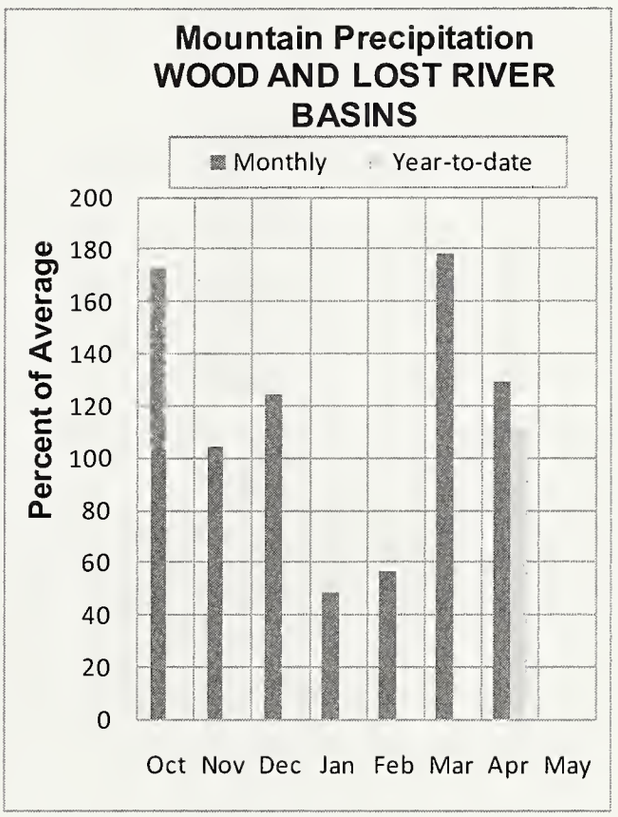
WOOD and LOST RIVER BASINS

MAY 1, 2011





WATER SUPPLY OUTLOOK

April's wet and cool weather prevented much snowmelt; maintaining and even increasing snowpack amounts in Idaho's central mountains. April had 129% of its normal precipitation in the Wood and Lost basins. On average snowpacks reach their peak snow water amount by April 1st but this year snowpacks are still climbing as of May 1. The Little Lost basin's snowpack is 133% of its normal peak value, the best snowpack since 1983. Elsewhere May 1 snow water amounts are still near or slightly above the April 1 amounts reported last month and the best since 2006. As a percent of the peak snow water amounts, the Big Wood basin's snowpack is 97%, the Little Wood is 105% and the Big Lost is 106% of its normal peak. Streamflow forecasts for most points call for about 130% of normal flow for the May-July period. With deep snow and high streamflow forecasts, Magic, Mackay and Little Wood reservoirs are all releasing water to create additional space for snowmelt. There will be plenty of water all summer long.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood R at Hailey (1)	MAY-JUL	215	267	290	129	313	365	225
	MAY-SEP	244	303	330	127	357	416	260
Big Wood R ab Magic Res	MAY-JUL	167	202	225	136	248	283	165
	MAY-SEP	182	220	245	137	270	308	179
Camas Ck nr Blaine	MAY-JUL	24	39	52	121	67	92	43
	MAY-SEP	24	40	53	121	68	93	44
Big Wood R bl Magic Dam (2)	MAY-JUL	202	245	275	134	305	348	205
	MAY-SEP	223	269	300	136	331	377	220
Little Wood R ab High Five Ck	MAY-JUL	51	64	74	128	85	101	58
	MAY-SEP	56	71	82	126	94	112	65
Little Wood R nr Carey (2)	MAY-JUL	60	71	78	126	85	96	62
	MAY-SEP	66	78	86	123	94	106	70
Big Lost R at Howell Ranch	MAY-JUL	157	185	205	127	226	260	162
	MAY-SEP	183	216	240	129	265	305	186
Big Lost R bl Mackay Res	MAY-JUL	143	156	165	128	174	187	129
	MAY-SEP	177	194	205	129	216	233	159
Little Lost R nr Howe	MAY-JUL	28	33	36	133	40	45	27
	MAY-SEP	36	42	46	131	51	58	35

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	176.8	134.8	150.4
LITTLE WOOD	30.0	19.1	29.5	24.3
MACKAY	44.4	31.3	43.8	34.6

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	7	188	120
Camas Creek	3	313	145
Big Wood Basin Total	10	197	123
Fish Creek	0	0	0
Little Wood River	4	285	153
Big Lost River	4	318	129
Little Lost River	3	339	153
Birch-Medicine Lodge Cree	2	190	139
Camas-Beaver Creeks	2	418	167

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(2) - The value is natural volume - actual volume may be affected by upstream water management.
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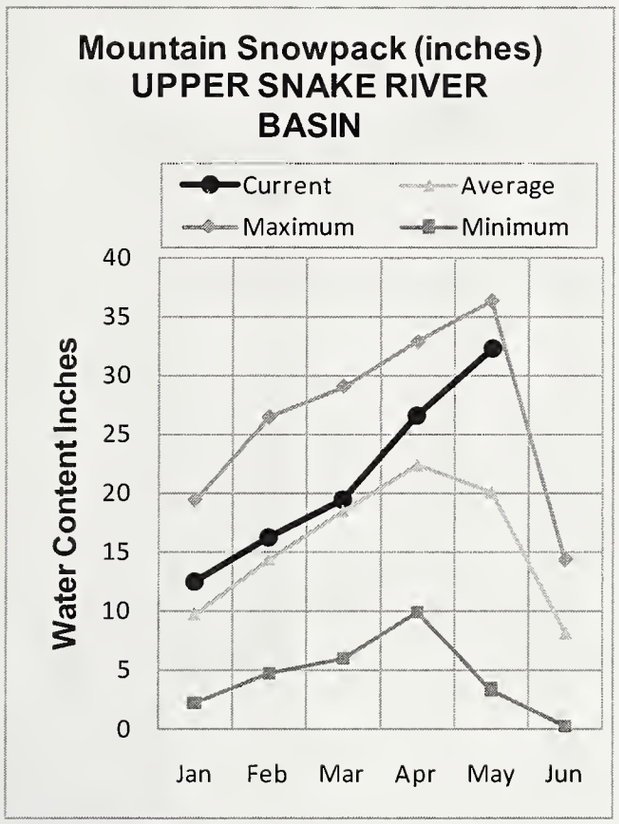
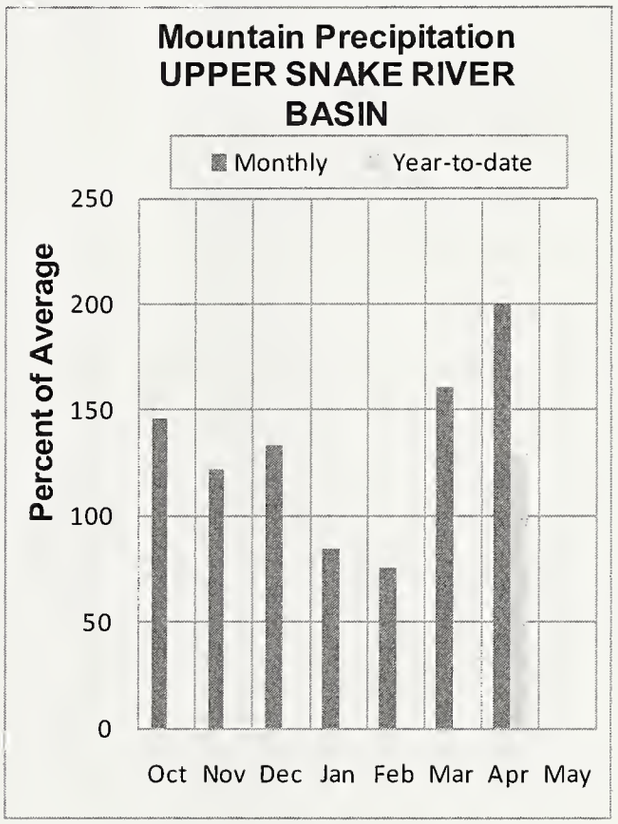
UPPER SNAKE BASIN

MAY 1, 2011





WATER SUPPLY OUTLOOK

2011 will go down as one of the biggest winters ever measured in the Upper Snake basin while 2010 was one of the lowest. This year's snowpack above Palisades Reservoirs peaked a half month later and over 2.5 times higher than 2010. This year's May 1 snow measurement at Lewis Lake Divide SNOTEL recorded 55.1 inches of snow water, tying the 1971 measurement for the second greatest May 1 snowpack since 1960; 1982 with 57.5 inches is the only year with more snow water this late in the season. This year's snow is 162% of the normal peak amount for the Snake River above Palisades Reservoir, 155% of the normal peak for the Henrys Fork and Teton basins and 212% of the peak for the Willow, Blackfoot and Portneuf basins. The current snowpack is very similar to the peak amount measured in 1997, the largest snowpack in recent years. April precipitation was twice normal and greater than any other April in the last two decades. Water year-to-date precipitation now stands at 129% of average. Releases from Palisades Reservoir are being reduced this week as this reservoir is approaching the required flood-control space. Palisades has been drawn down to 27% of capacity (includes 155,500 acre-feet of inactive storage) and Jackson Lake to 64% of capacity. Streamflow forecasts range 130-200% of average with the Teton and Salt rivers ranking the highest. The Snake River at Heise forecast calls for 153% of average or 4,850 KAF for the May-July period. There will be plenty of water for all concerned this summer. Future weather will determine when and how the rivers peak. Hopefully, warm temperatures will gradually melt the snow and the spring dries out so that creeks and rivers don't overtop their banks and farmers can work the fields.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fk nr Ashton (2)	MAY-JUL	531	601	650	144	701	781	450
	MAY-SEP	743	829	890	138	953	1050	645
Falls R nr Ashton (2)	MAY-JUL	375	420	450	134	485	535	335
	MAY-SEP	455	510	545	135	585	640	405
Teton R nr Driggs	MAY-JUL	247	272	290	203	308	336	143
	MAY-SEP	310	342	365	194	389	425	188
Teton R nr St. Anthony	MAY-JUL	548	602	640	180	679	739	355
	MAY-SEP	647	710	755	174	801	871	435
Henrys Fork nr Rexburg (2)	MAY-JUL	1727	1830	1900	143	1970	2073	1330
	MAY-SEP	2320	2439	2520	142	2601	2720	1780
Snake R at Flagg Ranch	MAY-JUL	635	675	700	154	725	765	455
	MAY-SEP	710	755	785	155	815	860	505
Snake R nr Moran (1,2)	MAY-JUL	1010	1110	1150	153	1190	1290	750
	MAY-SEP	1110	1220	1270	151	1320	1430	840
Pacific Ck at Moran	MAY-JUL	205	235	250	156	265	295	160
	MAY-SEP	215	240	260	156	280	305	167
Buffalo Fork ab Lava nr Moran	MAY-JUL	355	380	400	139	420	445	288
	MAY-JUL	355	380	400	139	420	445	288
Gros Ventre R at Kelly	MAY-JUL	225	255	280	151	305	335	186
	MAY-JUL	225	255	280	151	305	335	186
Snake R ab Res nr Alpine (1,2)	MAY-JUL	2800	3040	3150	146	3260	3500	2160
	MAY-SEP	3270	3570	3700	146	3830	4130	2530
Greys R nr Alpine	MAY-JUL	440	465	485	162	505	530	300
	MAY-SEP	515	550	570	161	590	625	355
Salt R nr Etna	MAY-JUL	485	535	565	202	595	645	280
	MAY-SEP	594	651	690	192	729	786	360
Snake R nr Irwin (1,2)	MAY-JUL	4200	4470	4600	154	4730	5000	2980
	MAY-SEP	4960	5280	5420	154	5560	5880	3520
Snake R nr Heise (2)	MAY-JUL	4510	4710	4850	153	4990	5190	3170
	MAY-SEP	5370	5600	5760	153	5920	6150	3760
Willow Ck nr Ririe (2)	MAY-JUL	89	100	107	178	114	125	60
Blackfoot R ab Res nr Henry	MAY-JUN	61	81	96	171	113	140	56
Snake R nr Blackfoot (1,2)	MAY-JUL	5820	6280	6480	157	6680	7140	4130
	MAY-SEP	7320	7780	7980	155	8180	8640	5140
Portneuf R at Topaz	MAY-JUL	76	87	94	145	102	113	65
	MAY-SEP	98	110	118	141	127	140	84
Snake R at Neeley (1,2)	MAY-JUL	4170	4820	5120	194	5420	6070	2640
	MAY-SEP	4780	5490	5820	200	6150	6860	2910

UPPER SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	91.1	89.9	87.4
ISLAND PARK	135.2	108.7	132.1	123.2
GRASSY LAKE	15.2	13.8	13.4	12.7
JACKSON LAKE	847.0	544.5	656.4	471.1
PALISADES	1400.0	375.2	1390.0	862.6
RIRIE	80.5	69.0	56.6	56.2
BLACKFOOT	348.7	255.6	230.2	256.3
AMERICAN FALLS	1672.6	1535.1	1663.9	1493.8

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Henrys Fork-Falls River	7	315	162
Teton River	8	235	156
Henrys Fork above Rexburg	15	270	159
Snake above Jackson Lake	6	300	163
Pacific Creek	2	267	173
Gros Ventre River	2	206	137
Hoback River	5	338	160
Greys River	4	232	163
Salt River	5	266	182
Snake above Palisades	21	276	162
Willow Creek	7	342	262
Blackfoot River	3	453	217
Portneuf River	6	266	215
Snake abv American Falls	38	284	174

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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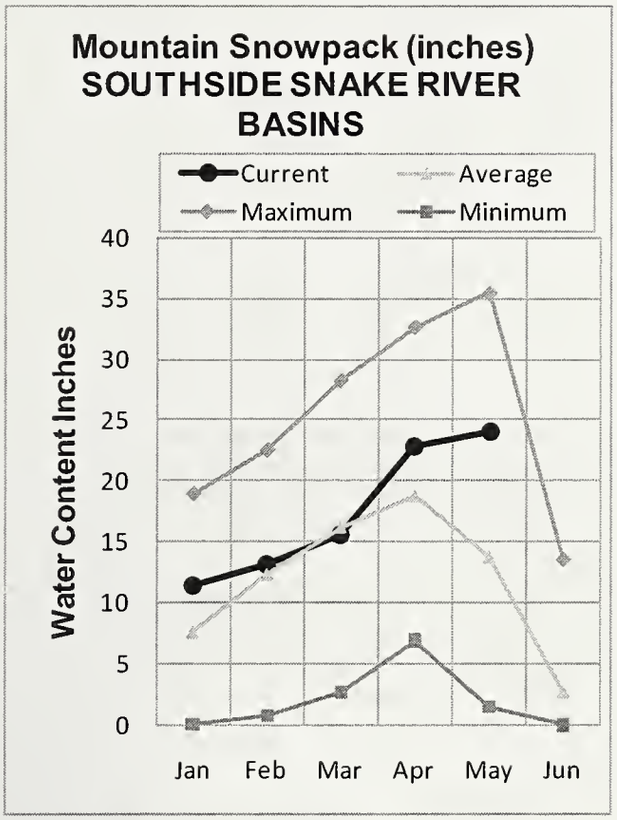
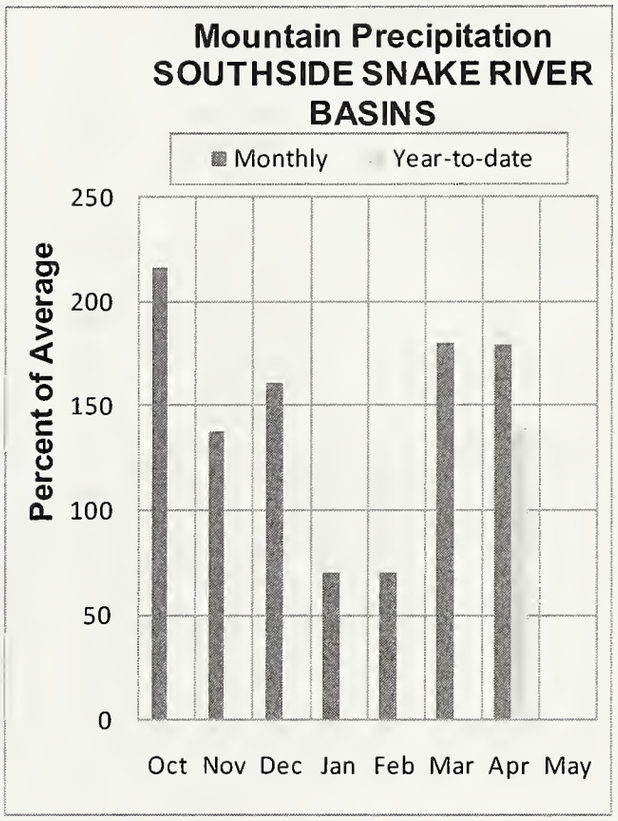
SOUTHSIDE SNAKE RIVER BASINS

MAY 1, 2011





WATER SUPPLY OUTLOOK

A bonus month of winter provided another boost to water supplies for the Southside Snake basins. April was the fifth month since October with above normal precipitation. Monthly precipitation in April was 179% of average, bringing water year-to-date precipitation to 139% of average. Cool temperatures prevented snowmelt and kept May 1 snowpacks above their normal peak amounts. Salmon Falls and Bruneau basin's snowpacks are the highest at 128% of their normal peak snow water amounts and snowpacks in Goose and Owyhee basins are still a few points higher than their peak amounts. Snowpacks in the Salmon Falls, Bruneau and Owyhee basins are the best since 1984. Streamflow forecasts for the May-July period range from 130% of average for Reynolds Creek, to 152% for Oakley Reservoir inflow, to 182% for Bruneau River, to 212% of average for Salmon Falls Creek. Owyhee reservoir will fill and operators are releasing water through the "glory hole" to make room for snowmelt. Storage continues to increase in Oakley and Salmon Falls reservoir but it would take the 10% chance of exceedance forecast streamflow volume to fill those reservoirs. No waters shortages are expected and future temperatures and rain events will determine when river levels rise again as snowmelt progresses.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<= Drier = Future Conditions = Wetter =>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Goose Ck ab Trapper Ck nr Oakley	MAY-JUL	19.0	24	28	171	32	37	16.4
	MAY-SEP	22	27	31	171	35	41	18.1
Trapper Ck nr Oakley	MAY-JUL	5.4	6.0	6.4	141	6.8	7.4	4.5
	MAY-SEP	7.0	7.6	8.1	138	8.6	9.2	5.9
Oakley Res Inflow	MAY-JUL	21	27	32	152	37	45	21
	MAY-SEP	24	31	36	150	41	50	24
Salmon Falls Ck nr San Jacinto	MAY-JUL	88	107	121	212	136	160	57
	MAY-SEP	91	110	124	200	139	163	62
Bruneau R nr Hot Springs	MAY-JUL	209	258	295	182	334	396	162
	MAY-SEP	216	267	305	176	345	409	173
Reynolds Ck at Tollgate	MAY-JUL	5.3	6.5	7.4	130	8.3	9.8	5.7
Owyhee R nr Gold Ck (2)	MAY-SEP	12.8	18.9	23	215	27	33	10.7
Owyhee R nr Rome	MAY-JUL	348	409	450	214	491	552	210
	MAY-SEP	390	455	495	215	535	600	230
Owyhee R bl Owyhee Dam (2)	MAY-JUL	335	405	460	204	515	605	225
	MAY-SEP	390	470	525	206	585	680	255

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	34.8	30.2	41.0
SALMON FALLS	182.6	92.1	60.0	87.9
WILDHORSE RESERVOIR	71.5	69.5	40.4	55.8
OWYHEE	715.0	666.1	371.2	613.6
BROWNLEE	1420.0	742.2	1355.2	1069.2

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	1	188	188
Goose-Trapper Creeks	4	210	170
Salmon Falls Creek	7	207	168
Bruneau River	5	214	193
Reynolds Creek	0	0	0
Owyhee Basin Total	7	248	207

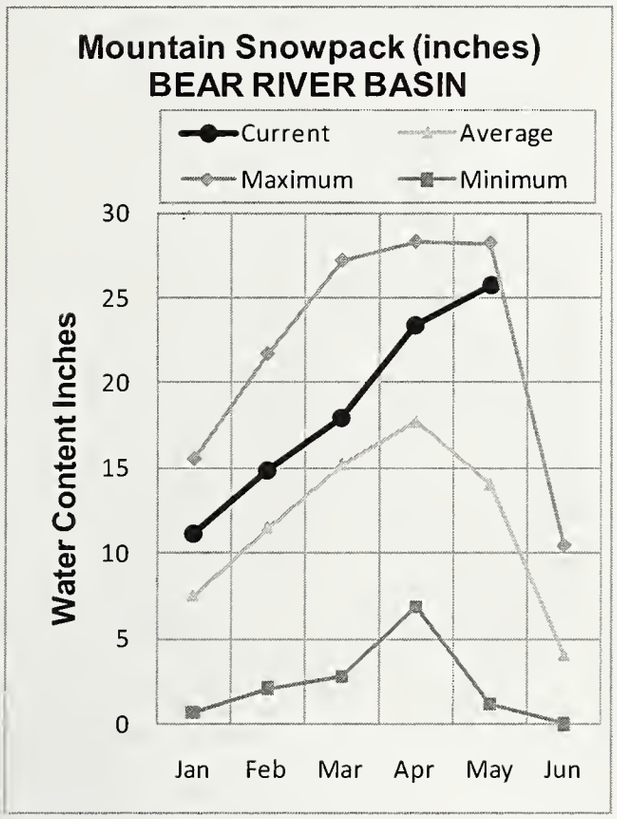
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

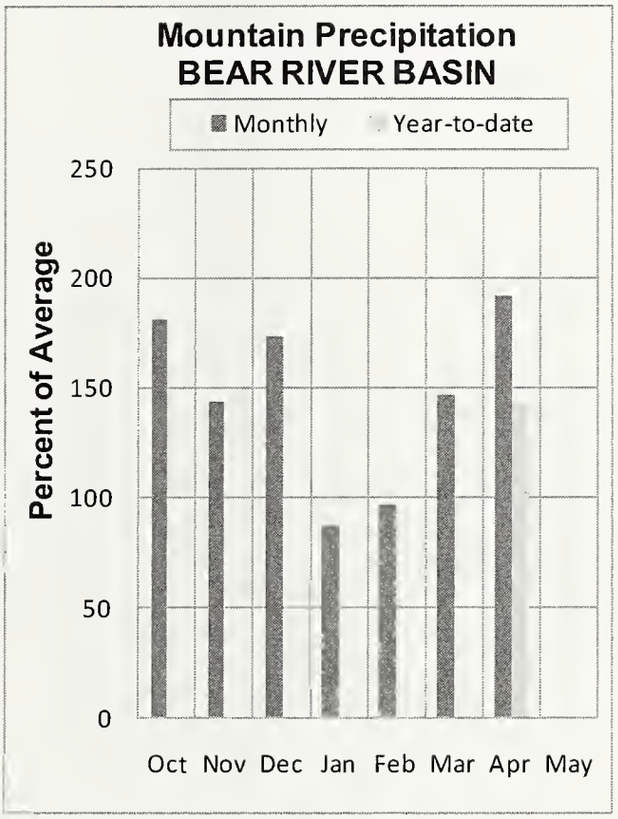
The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

BEAR RIVER BASIN

MAY 1, 2011





WATER SUPPLY OUTLOOK

The snowpack on May 1 in the Bear River basin broke a record since SNOTEL measurements began in 1961. The snowpack is 184% of average and over three times more than last year at this time. How did all this happen? Since the water year began on October 1, the Bear River basin has had average to well-above average monthly precipitation for nearly every month. The month of April brought 192% of average precipitation and that leaves the water year-to-date precipitation at 143% of average; the highest in the state. As you might expect, some SNOTEL sites in the basin also broke records for the most amount of April precipitation measured. The second highest snowpack on record occurred in 1986 at 178% of average in the Bear River basin overall. The May-July streamflow was 258% of normal at the Bear River below Stewart Dam during that year. This streamflow was the highest runoff recorded since 1927. Given that the current year has the highest snowpack on record, the Bear River near the Utah-Wyoming state line, the Little Bear River and the Logan River are also forecast for record high streamflow volumes. According to the 50% chance of exceedance forecasts, the May-July volumes range from a projected 163% of average at the Smiths Fork,187% for the Bear River near the UT-WY State line and more than 200% of normal for the Bear River above the Reservoir and the other streams. There is no doubt that the snowpack will provide abundant runoff this spring. The question is how the snow will melt in order to manage the excess water wisely. The NRCS will provide additional forecasts for Montpelier Reservoir to help with their water management operations. Both Bear Lake and Montpelier Reservoir are 50% of capacity and below average this time of year. The bottom line is that the Bear basin is water rich this year and is something that has not happened in a while.

BEAR RIVER BASIN
Streamflow Forecasts - May 1, 2011

Forecast Point	Forecast Period	<<== Drier == Future Conditions == Wetter ==>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	182	196	205	181	215	230	113
	MAY-JUL	179	192	200	187	210	220	107
	APR-SEP	195	210	220	176	230	245	125
	MAY-SEP	192	205	215	181	225	240	119
Bear R ab Res nr Woodruff	APR-JUL	260	275	290	213	305	320	136
	MAY-JUL	220	240	250	216	260	280	116
	APR-SEP	270	285	300	211	315	330	142
	MAY-SEP	230	250	260	213	270	290	122
Big Ck nr Randolph	APR-JUL	9.6	10.4	11.0	225	11.6	12.4	4.9
	MAY-JUL	7.9	8.7	9.3	216	9.9	10.7	4.3
Smiths Fk nr Border	APR-JUL	148	156	161	156	166	174	103
	APR-SEP	170	179	186	154	193	200	121
	MAY-JUL	142	150	155	163	160	168	95
	MAY-SEP	164	173	180	161	187	196	112
Bear R bl Stewart Dam	APR-JUL	495	545	580	248	615	665	234
	APR-SEP	550	605	640	244	675	730	262
	MAY-JUL	410	450	480	258	510	550	186
	MAY-SEP	470	515	550	257	585	630	214
Little Bear R at Paradise	APR-JUL	90	100	106	230	112	122	46
	MAY-JUL	70	79	85	266	91	100	32
Logan R nr Logan	APR-JUL	195	210	220	175	225	240	126
	MAY-JUL	177	191	200	185	210	225	108
Blacksmith Fork nr Hyrum	APR-JUL	89	102	111	231	120	133	48
	MAY-JUL	70	82	90	225	98	110	40

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	708.7	595.7	971.0
MONTPELIER CREEK	4.0	2.0	3.5	2.5

BEAR RIVER BASIN
Watershed Snowpack Analysis - May 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	242	169
Bear River ab WY-ID line	12	296	190
Montpelier Creek	2	271	183
Mink Creek	1	366	166
Cub River	1	318	196
Bear River ab ID-UT line	20	312	191
Malad River	1	0	515

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report: Streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. **(Revised Jan 2011).**

Panhandle River Basins

Kootenai R at Leonia, ID
+ Lake Koocanusa (Storage Change)

Moyie R at Eastport, ID – No Corrections

Boundary Ck nr Porthill, ID – No Corrections

Smith Creek nr Porthill, ID – No Corrections

Clark Fork R at Whitehorse Rapids, ID
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids Res (Storage Change)

Pend Oreille Lake Inflow, ID
+ Pend Oreille R at Newport, WA
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids (Storage Change
+ Pend Oreille Lake (Storage Change)
+ Priest Lake (Storage Change)

Priest R nr Priest R, ID
+ Priest Lake (Storage Change)

NF Coeur d'Alene R at Enaville, ID - No Corrections

St. Joe R at Calder, ID - No Corrections

Spokane R nr Post Falls, ID
+ Coeur d'Alene Lake (Storage Change)

Spokane R at Long Lake, WA
+ Coeur d'Alene Lake (Storage Change)
+ Long Lake, WA (Storage Change)

Clearwater River Basin

Selway R nr Lowell - No Corrections

Lochsa R nr Lowell - No Corrections

Dworshak Res Inflow, ID
+ Clearwater R nr Peck, ID
- Clearwater R at Orofino, ID
+ Dworshak Res (Storage Change)

Clearwater R at Orofino, ID - No Corrections

Clearwater R at Spalding, ID
+ Dworshak Res (Storage Change)

Salmon River Basin

Salmon R at Salmon, ID - No Corrections

Lemhi R nr Lemhi, ID – No Corrections

MF Salmon R at MF Lodge, ID – No Corrections

SF Salmon R nr Krassel Ranger Station, ID – No Corrections

Johnson Creek at Yellow pine, ID – No Corrections

Salmon R at White Bird, ID - No Corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser, ID - No Corrections

SF Payette R at Lowman, ID - No Corrections

Deadwood Res Inflow, ID
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res (Storage Change)

Lake Fork Payette R nr Mccall, ID – No Corrections

NF Payette R at Cascade, ID
+ Cascade Res (Storage Change)
+ Payette Lake (Storage Change)

NF Payette R nr Banks, ID
+ Cascade Res (Storage Change)
+ Payette Lake (Storage Change)

Payette R nr Horseshoe Bend, ID
+ Cascade Res (Storage Change)
+ Deadwood Res (Storage Change)
+ Payette Lake (Storage Change)

Boise R nr Twin Springs, ID - No Corrections

SF Boise R at Anderson Ranch Dam, ID
+ Anderson Ranch Res (Storage Change)

Mores Ck nr Arrowrock Dam – No Corrections

Boise R nr Boise, ID
+ Anderson Ranch Res (Storage Change)
+ Arrowrock Res (Storage Change)
+ Lucky Peak Res (Storage Change)

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections

Big Wood R ab Magic Res, ID
+ Big Wood R nr Bellevue, ID
+ Willow Ck

Camas Ck nr Blaine – No Corrections

Big Wood R bl Magic Dam nr Richfield, ID
+ Magic Res (Storage Change)

Little Wood R ab High Five Ck, ID – No Corrections

Little Wood R nr Carey, ID
+ Little Wood Res (Storage Change)

Big Lost R at Howell Ranch, ID - No Corrections

Big Lost R bl Mackay Res nr Mackay, ID
+ Mackay Res (Storage Change)

Little Lost R bl Wet Ck nr Howe, ID - No Corrections

Upper Snake River Basin

Henrys Fork nr Ashton, ID
+ Henrys Lake (Storage Change)
+ Island Park Res (Storage Change)

Henrys Fork nr Rexburg, ID
+ Henrys Lake (Storage Change)
+ Island Park Res (Storage Change)
+ Grassy Lake (Storage Change)
+ Diversions from Henrys Fk btw Ashton to St. Anthony, ID
+ Diversions from Henrys Fk btw St. Anthony to Rexburg, ID
+ Diversions from Falls R ab nr Ashton, ID
+ Diversions from Falls R nr Ashton to Chester, ID

Falls R nr Ashton, ID
+ Grassy Lake (Storage Change)
+ Diversions from Falls R ab nr Ashton, ID

Teton R nr Driggs, ID - No Corrections

Teton R nr St. Anthony, ID
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R ab St. Anthony, ID

Snake R nr Moran, WY
+ Jackson Lake (Storage Change)

Pacific Ck at Moran, WY – No Corrections
Buffalo Fork ab Lava nr Moran – No Corrections
Gros Ventre R at Kelly – No Corrections
Snake R ab Palisades, WY
+ Jackson Lake (Storage Change)
Greys R ab Palisades, WY – No Corrections
Salt R ab Palisades, WY – No Corrections
Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Res (Storage Change)
Blackfoot Reservoir Inflow, ID
+ Blackfoot Reservoir releases
+ Blackfoot Res (Storage Change)
Portneuf R at Topaz, ID - No Corrections
Snake R at Neeley, ID
+ Snake R at Neeley (observed)
+ All Corrections made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Goose Ck ab Trapper Ck-no adjustments
Trapper Ck nr Oakley-no adjustments
Oakley Res Inflow, ID (does not include Birch Creek inflow)
+ Goose Ck ab Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - No Corrections
Reynolds Ck at Tollgate - No Corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Res (Storage Change)
Owyhee R nr Rome, OR – No Corrections
Owyhee R bl Owyhee Dam, OR
+ Owyhee R bl Owyhee Dam, OR (observed)
+ Owyhee Res (Storage Change)
+ Diversions to North and South Canals
Snake R at King Hill, ID - No Corrections
Snake R nr Murphy, ID - No Corrections
Snake R at Weiser, ID - No Corrections
Snake R at Hells Canyon Dam, ID
+ Brownlee Res (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R ab Res nr Woodruff, UT – No Corrections
Big Ck nr Randolph – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R bl Stewart Dam nr Montpelier, ID
+ Bear R bl Stewart Dam
+ Rainbow Inlet Canal
Little Bear R at Paradise – No Corrections
Logan R nr Logan – No Corrections
Blacksmith Fk nr Hyrum – No Corrections

Reservoir Capacity Definitions (Units in 1,000 Acre-Feet, KAF)

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. **(Revised Jan 2011)**

Basin/ Reservoir	Dead Storage	Inactive Storage	Active Storage	Surcharge Storage	NRCS Capacity	NRCS Capacity Includes
Panhandle Region						
Hungry Horse	39.73	---	3451.00	---	3451.0	Active
Flathead Lake	Unknown	---	1791.00	---	1791.0	Active
Noxon Rapids	Unknown	---	335.00	---	335.0	Active
Pend Oreille	406.20	112.40	1042.70	---	1561.3	Dead+Inactive+Active
Coeur d'Alene	Unknown	13.50	225.00	---	238.5	Inactive+Active
Priest Lake	20.00	28.00	71.30	---	119.3	Dead+Inactive+Active
Clearwater Basin						
Dworshak	Unknown	1452.00	2016.00	---	3468.0	Inactive+Active
Weiser/Boise/Payette Basins						
Mann Creek	1.61	0.24	11.10	---	11.1	Active
Cascade	Unknown	46.70	646.50	---	693.2	Inactive+Active
Deadwood	Unknown	---	161.90	---	161.9	Active
Anderson Ranch	24.90	37.00	413.10	---	450.1	Inactive+Active
Arrowrock	Unknown	---	272.20	---	272.2	Active
Lucky Peak	Unknown	28.80	264.40	13.80	293.2	Inactive+Active
Lake Lowell	7.90	5.80	159.40	---	165.2	Inactive+Active
Wood/Lost Basins						
Magic	Unknown	---	191.50	---	191.5	Active
Little Wood	Unknown	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
Upper Snake Basin						
Henrys Lake	Unknown	---	90.40	---	90.4	Active
Island Park	0.40	---	127.30	7.90	135.2	Active+Surcharge
Grassy Lake	Unknown	---	15.18	---	15.2	Active
Jackson Lake	Unknown	---	847.00	---	847.0	Active
Palisades	44.10	155.50	1200.00	---	1400.0	Dead+Inactive+Active
Ririe	4.00	6.00	80.54	10.00	80.5	Active
Blackfoot	Unknown	---	348.73	---	348.7	Active
American Falls	Unknown	---	1672.60	---	1672.6	Active
Southside Snake Basins						
Oakley	0.00	---	75.60	---	75.6	Active
Salmon Falls	48.00	5.00	182.65	---	182.6	Active+Inactive
Wildhorse	Unknown	---	71.50	---	71.5	Active
Owyhee	406.83	---	715.00	---	715.0	Active
Brownlee	0.45	444.70	975.30	---	1420.0	Inactive+Active
Bear River Basin						
Bear Lake	5000.00	119.00	1302.00	---	1421.0	Active+Inactive: includes 119 that can be released
Montpelier Creek	0.21	---	3.84	---	4.0	Dead+Active

Interpreting Water Supply Forecasts

Introduction
Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

90 Percent Chance of Exceedance Forecast. There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

70 Percent Chance of Exceedance Forecast. There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

50 Percent Chance of Exceedance Forecast. There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

30 Percent Chance of Exceedance Forecast. There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

10 Percent Chance of Exceedance Forecast. There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

30-Year Average. The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

To Decrease the Chance of Having Less Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of .having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

To Decrease the Chance of Having More Water than Planned for
A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

Using the forecasts - an Example
Using the 50 Percent Exceedance Forecast. Using the example forecasts shown below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 KAF.

Using the 90 and 70 Percent Exceedance Forecasts. If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 610 KAF.

Alternativcly, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 443 KAF.

Using the 30 or 10 Percent Exceedance Forecasts. If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

Weiser, Payette, Boise River Basins
Streamflow Forecasts – January 2006

Forecast Point	Forecast Period	Chance of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000 AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF PAYETTE RIVER at Lowman	APR-JUL	329	414	471	109	528	613	432
	APR-SEP	369	459	521	107	583	673	488
BOISE RIVER near Twin Springs (1)	APR-JUL	443	610	685	109	760	927	631
	APR-SEP	495	670	750	109	830	1005	690

*90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table

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